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# Medical law reporter

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## PLANETARY MEDICINE AND THE WAITANGI TRIBUNAL WHANGANUI RIVER REPORT: GLOBAL HEALTH LAW EMBRACING ECOSYSTEMS AS PATIENTS

*A recent decision of the Waitangi Tribunal granted legal personhood to New Zealand's Whanganui River (appointing guardians to act in its interests). Exploring the impacts of this decision, this column argues that new technologies (such as artificial photosynthesis) may soon be creating policy opportunities not only for legal personhood to be stripped from some artificial persons, but for components of the natural world (such as rivers and other ecosystems) to be granted such enforceable legal rights. Such technologies, if deployed globally, may do this by taking the pressure off ecosystems to be exploited for human profit and survival. It argues that, by also creating normative space for such an expansion of sympathy, global health law begins to incorporate the vision of planet as patient.*

*E rere kau mai te Awanui*

*Mai i te Kahui Maunga ki Tangaroa*

*Ko au te Awa, ko te Awa ko au.*

The Great River flows

From the Mountains to the Sea

I am the River, and the River is me.<sup>1</sup>

### INTRODUCTION

This column explores the recent case report and agreement (*Tutohu Whakatupua*) from the New Zealand Whanganui Tribunal concerning the Whanganui River. That report in effect established legal personhood for a river, its rights to be enforced through courts by appointed guardians. This leads to the question of whether Australian law, along with that of most other jurisdictions, having already granted a form of legal personhood to corporate entities, would support a similar grant of standing to a natural object such as an ecosystem. This column discusses the implications of such “ecosystem personhood” for health law and whether legal personality for the environment, in tandem with a planetary systems approach to environmental management, may be facilitated by new forms of renewable energy technology such as artificial photosynthesis. Finally, it considers that, rather than command-control “top-down” governance by corporate-state entities, competition and consumer law may support community and wider democratic involvement in these processes, thereby promoting the emerging non-anthropocentric foundational social virtue of environmental sustainability as a means of reconsidering what type of artificial entities should in future deserve legal status as persons.

### THE WHANGANUI RIVER AS LEGAL PERSON

The headwaters of the Whanganui River start as small creeks and streams on the northern slopes of Mount Tongariro, in the centre of New Zealand's North Island. From this geologically active region close to Lake Taupo and Mount Ruapehu, the Whanganui, the longest navigable river in New Zealand,

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<sup>1</sup> Whanganui River Management Trust Board, *Record of Understanding in Relation to Whanganui River Settlement – Whanganui Iwi and the Crown* (signed 13 October 2011), <http://nz01.terabyte.co.nz/ots/DocumentLibrary%5CWhanganuiRiverROU.pdf> viewed 7 January 2013.

winds 290 km to the Tasman Sea.<sup>2</sup> Its waters contribute to the generation of approximately 5% of New Zealand's power and provide a habitat for native fish and the endangered whio (blue duck).<sup>3</sup> The river supports a dynamic local *ecosystem* and provides significant amenity to the towns and businesses along its banks.

The local Maori Iwi (tribe) and hapu (sub-tribes) hold the river sacred and consider the entire river system, including "all its physical and metaphysical elements from the mountains to the sea",<sup>4</sup> as a living being, Te Awa Tupua. The river itself has been the subject of a longstanding native title claim by the Iwi,<sup>5</sup> who claim possession of the river, its resources and the continued existence of rangatiratanga (chieftainship or ownership) over the river and its taonga (treasured tangible and intangible items).

In October 2011 the Iwi and the government signed a non-binding agreement<sup>6</sup> to negotiate a final settlement over the river, seeking to finalise all outstanding claims and to secure the future of the Whanganui (the 2011 Agreement).<sup>7</sup> Under cl 3.2 of the 2011 Agreement, negotiations were to be conducted according to two key principles:

3.2.1 Te Mana o Te Awa (recognising, promoting and protecting the health and wellbeing of the Whanganui River and its status as Te Awa Tupua); and

3.2.2 Te Mana o Te Iwi (recognising and providing for the mana [spiritual power or authority] of Whanganui Iwi in respect of the Whanganui River).<sup>8</sup>

Reflecting the emerging bioethical principle of intergenerational equity, the parties agreed to negotiate a final settlement that "protects the health and wellbeing of the Whanganui River for future generations".<sup>9</sup> Under the 2011 Agreement the parties set out the preferred basis for ongoing protection for the river. The special status of Te Awa Tupua was to be recognised by legislation, with "trustees" appointed to "represent the interests of the Whanganui River as Te Awa Tupua".<sup>10</sup>

It was proposed that up to six, but no less than two, river trustees would be appointed in equal numbers by the government and the Iwi.<sup>11</sup> The purpose of the trustees would be to "promote and protect the Te Awa Tupua status and the health and wellbeing of the Whanganui River".<sup>12</sup> To fulfil this purpose, the trustees would:

3.13.1 [have] an overarching duty to act in the interests of the Whanganui River, not as representatives of their respective appointees;

3.13.2 ... facilitate and promote integrated catchment-wide management of the Whanganui River;

3.13.3 ... advise and make recommendations to agencies and bodies with administrative responsibilities over the Whanganui River;

3.13.4 ... obtain and share information in relation to the Whanganui River;

<sup>2</sup> Whanganui River Management Trust Board, n 1 at [1.5].

<sup>3</sup> Whanganui River Management Trust Board, n 1 at [1.5]-[1.6].

<sup>4</sup> Whanganui River Management Trust Board, n 1 at [1.2]-[1.3]. Maori words, and their definitions, used in this article are either drawn from the source text or from *Maori Dictionary*, <http://www.maoridictionary.co.nz> viewed 7 January 2013.

<sup>5</sup> Waitangi Tribunal, *WAI Claim 167 – Concerning the Treaty of Waitangi Act 1975 And a Claim in Respect of the Whanganui River* (the Whanganui River Report) (1999) at [1.3.5]-[1.3.6], <http://www.waitangi-tribunal.govt.nz/scripts/reports/reports/167/98526190-56F9-4FDA-83B7-38AC13F83FDB.pdf> viewed 1 February 2013; Whanganui River Management Trust Board, n 1 at [1.7]-[1.9].

<sup>6</sup> Whanganui River Management Trust Board, n 1 at [5.1].

<sup>7</sup> Whanganui River Management Trust Board, n 1.

<sup>8</sup> Whanganui River Management Trust Board, n 1 at [3.2].

<sup>9</sup> Whanganui River Management Trust Board, n 1 at [2.1]. For an example of the principle of intergenerational equity see *Rio Declaration on the Environment and Development*, Principle 3, done at Rio de Janeiro, 3-14 June 1992, <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163> viewed 7 January 2013.

<sup>10</sup> Whanganui River Management Trust Board, n 1 at [3.8].

<sup>11</sup> Whanganui River Management Trust Board, n 1 at [3.11].

<sup>12</sup> Whanganui River Management Trust Board, n 1 at [3.8].

3.13.5 ... develop a set of high level River Values which:

- (a) would reflect the innate values and attributes of the Whanganui River;
- (b) would be appropriately considered by agencies and bodies with administrative responsibilities over the Whanganui River; and
- (c) would not be in the nature of an expansive and directive river document – in particular the River Values would not have legal effect as a regional policy statement or statement of general policy under conservation legislation and would not contain rules, targets or methods; and

3.13.6 ... other functions that may be agreed to give effect to other elements of the final arrangements that may be negotiated.

While significant, these “functions” were little different from the powers and objectives of conservation bodies or government environmental agencies<sup>13</sup> and do not, of themselves, demonstrate a step towards recognising greater rights for natural objects. In August 2012, however, the Minister for the Treaty of Waitangi announced that the government and Iwi had reached a preliminary agreement (*Tutohu Whakatupua*) on key elements for the protection of the Whanganui.<sup>14</sup> These elements included:

- Recognition of the status of the Whanganui River (including its tributaries) as Te Awa Tupua, an integrated, living whole from the mountains to sea;
- Recognition of Te Awa Tupua as a legal entity, reflecting the view of the River as a living whole *and enabling the River to have legal standing and an independent voice*;
- *Vesting of the Crown-owned parts of the river-bed in the name of Te Awa Tupua*;
- Appointment of two persons (one by the Crown and the other by the River iwi) to a *guardianship role* – Te Pou Tupua – to act on behalf of Te Awa Tupua and protect its status and health and wellbeing;
- Development of a set of Te Awa Tupua values, recognising the intrinsic characteristics of the river and providing guidance to decision-makers; and
- Development of a Whole of River Strategy by collaboration between iwi, central and local government, commercial and recreational users and other community groups. The strategy will identify issues for the river, consider ways of addressing them, and recommend actions. The goal of the strategy will be to ensure the long-term environmental, social, cultural and economic health and wellbeing of the river.<sup>15</sup>

As can be seen from the Minister’s announcement and *Tutohu Whakatupua*, the Whanganui – rather than simply being protected by legislation – is to be afforded an independent “legal standing” and “voice”.<sup>16</sup> The intention of the law is to reflect that the river is “a living entity in its own right ... incapable of being ‘owned’ in an absolute sense”.<sup>17</sup> Crown title to the river is to be vested in the name of the river (Te Awa Tupua), rather than with the Iwi or trust.<sup>18</sup> *Tutohu Whakatupua* clarifies that existing property rights, other than those of the Crown, are not going to be disturbed and that the public will retain a right of access to the river.<sup>19</sup>

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<sup>13</sup> See eg *Constitution of the Australian Conservation Foundation*, cl 2, [http://www.acfonline.org.au/sites/default/files/resources/ACF\\_Constitution\\_Dec\\_2010.pdf](http://www.acfonline.org.au/sites/default/files/resources/ACF_Constitution_Dec_2010.pdf) viewed 9 January 2013; see also *Australian Fisheries Administration Act 1991* (Cth), s 7.

<sup>14</sup> Finlayson, the Hon Christopher (Minister for the Treaty of Waitangi), *Whanganui River Agreement Signed* (30 August 2012), <http://www.beehive.govt.nz/release/whanganui-river-agreement-signed> viewed 7 January 2013. A copy of the preliminary agreement, *Tutohu Whakatupua*, can be found at <http://nz01.terabyte.co.nz/ots/DocumentLibrary%5CWhanganuiRiverAgreement.pdf> viewed 9 January 2013.

<sup>15</sup> Finlayson, n 14 (emphasis added).

<sup>16</sup> *Whanganui Iwi and the Crown, Tutohu Whakatupua* (30 August 2012) at [2.6]-[2.7], [http://www.wrmtb.co.nz/new\\_updates/TuutohuWhakatupuaFinalSigned.pdf](http://www.wrmtb.co.nz/new_updates/TuutohuWhakatupuaFinalSigned.pdf) viewed 9 January 2013.

<sup>17</sup> *Tutohu Whakatupua*, n 16 at [2.7.1].

<sup>18</sup> *Tutohu Whakatupua*, n 16 at [2.10]-[2.13].

<sup>19</sup> *Tutohu Whakatupua*, n 16 at [1.10.6], [1.10.7], [2.13]. Likewise, it is not intended that the final settlement will affect existing water rights in the river, ie Te Awa Tupua will not “own” the waters that flow through it (at [2.9]).

Finally, the concept of river “trustee” has been replaced by that of river “guardian” (or Te Pou Tupua). In contrast to the previous agreement, it is “intended” that two guardians will “provide the human face of Te Awa Tupua” and “owe [their] responsibilities to Te Awa Tupua, not the appointors [sic]”.<sup>20</sup>

The functions of the guardians reveal a change of status of the river from protected object to a rights-holder recognised for its “inherent value”, rather than its “use value” or mere “existence”.<sup>21</sup> For example, under the *Tutohu Whakatupua*, the guardians will:

- 2.21.1 protect the health and wellbeing of Te Awa Tupua;
- 2.21.2 uphold the status of Te Awa Tupua and the Te Awa Tupua Values;
- 2.21.3 act and speak on behalf of Te Awa Tupua;
- 2.21.4 carry out the “landowner” functions over those parts of the (formerly) Crown owned parts of the bed of the Whanganui River held under the Land Act 1948.<sup>22</sup>

Guardians and government bodies will be guided in their actions by a set of Te Awa Tupua “values”.<sup>23</sup>

Further negotiations are needed to finalise the Whanganui agreement (expected during 2013), with Cabinet and Iwi approval required before legislation implementing the agreement can be introduced into the New Zealand Parliament.<sup>24</sup>

Given the interconnectedness between the Whanganui Iwi and the Whanganui River, and the special protection afforded to New Zealand’s first people by the *Treaty of Waitangi*,<sup>25</sup> it is perhaps not surprising that this novel mechanism for protecting a particular ecosystem was adopted. Notwithstanding the unique circumstances of the case of the Whanganui River, the conferral of legal personality on natural objects generally could set an important precedent for environmental movements seeking to overcome traditional limitations on the ability of parties representing the environment – or some discrete element within an ecosystem – from suing for relief.

## LEGAL STANDING FOR ECOSYSTEMS

One limitation on the ability of communities and individuals to protect the environment is the traditional requirement for a party to a court action to have “standing”. This problem emerges because in original conceptions of our social contract (as partially reflected in constitutional arrangements) any individual seeking to bring an action on behalf of the environment is usually seeking to vindicate a public right, or to protect the public from a particular consequence, rather than seeking to enforce a private right. For example, a wilderness group may seek an injunction to prevent a factory discharging chemical waste into a river.

Absent direct injury to one of the members of the group, however, the group has no standing and a court is likely to dismiss the action because the group lacks a “special interest” in the case.<sup>26</sup> Questions of, and challenges to, standing are common in all common law countries. Without granting legal personality to a natural object or ecosystem itself, an additional question arises: assuming a third

<sup>20</sup> *Tutohu Whakatupua*, n 16 at [2.20.2]-[2.20.3].

<sup>21</sup> *Tutohu Whakatupua*, n 16 at [1.8.2], [2.16]. These different values were explored in the Canadian Supreme Court decision of *British Columbia v Canadian Forest Products Ltd* [2004] 2 SCR 74 which is discussed below.

<sup>22</sup> *Tutohu Whakatupua*, n 16 at [2.21.1]-[2.21.4].

<sup>23</sup> *Tutohu Whakatupua*, n 16 at [2.14]-[2.17].

<sup>24</sup> Finlayson, n 14.

<sup>25</sup> The Treaty is set out in the *Treaty of Waitangi Act 1975* (NZ), Sch 1. For a brief overview of some key principles underpinning the Treaty see Hayward J, *The Principles of the Treaty of Waitangi* (no date), [http://www.waitangi-tribunal.govt.nz/doclibrary/public/Appendix\(99\).pdf](http://www.waitangi-tribunal.govt.nz/doclibrary/public/Appendix(99).pdf) viewed 4 January 2013. See generally, *Re the Bed of the Wanganui River* [1963] NZLR 673; *New Zealand Maori Council v Attorney-General* [1987] 1 NZLR 641; *Te Runanganui o Te Ika Whenua Inc Society v Attorney-General* [1994] 2 NZLR 20.

<sup>26</sup> See generally, *Truth About Motorways Pty Ltd v Macquarie Infrastructure Investment Management Ltd* (2000) 200 CLR 591 at [1] (Gleeson CJ, McHugh J). For an American perspective see Scalia J’s judgment for the court in *Steel Co v Citizens for Better Environment* 523 US 83 (1998).

party can establish standing, who is best placed to represent the interests of the object? Is it a well-meaning conservation group or a government official or agency? Conferring legal personality on the river itself would allow it to bring an action in its own name through a litigation guardian, or “guardian ad litem”. Such a guardian could be appointed under statute or subordinate legislation – as in the case of the Whanganui’s future Te Pou Tupua – or by the court under established procedures.<sup>27</sup>

In the United Kingdom, only the Attorney-General (or someone authorised by her or him) can institute proceedings in the public’s interest to remedy a public nuisance.<sup>28</sup> Likewise, in Australia and Canada, an Attorney-General can seek relief for environmental damage, if properly particularised,<sup>29</sup> on behalf of the public in her or his role as *parens patriae*.<sup>30</sup>

While the historical and current rules governing standing might more easily permit an Attorney-General to represent a natural object – on behalf of the public’s interest – this is likely to be of little practical use to protect the “intrinsic value” of the environment, especially where the interests of the object conflict with wider, human interest. As governments are usually responsible for issuing (and collecting revenue on) mining, coal-seam gas “fracking” rights or allocating water rights against water share to private parties,<sup>31</sup> they are unlikely to then act on behalf of the resource (the object of the licence) to subvert their previous decision.<sup>32</sup> Moreover, because governments are responsible to the whole *human* population of a State or country, a government may be more willing to permit a certain level of environmental degradation in the name of “sustainable development”.<sup>33</sup> By contrast, medical ethics holds that, with very few exceptions,<sup>34</sup> the interests of a patient are paramount over the wider interests of society.<sup>35</sup> Were the environment to be granted legal personality and certain rights akin to those of patients, then the balancing of competing interests would likely involve greater deference to the interests of the environment.<sup>36</sup>

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<sup>27</sup> Such appointments could be based on existing procedures, modified appropriately: eg *Supreme Court (General Civil Procedure) Rules* (Vic), O 15, and *Guardianship and Administration Act 1986* (Vic), s 66. For background on the use of litigation guardians see Victorian Law Reform Commission, *Civil Justice Review: Report* (VLRC, Melbourne, 2008) p 601; Victorian Law Reform Commission, *Guardianship: Report* (VLRC, Melbourne, 2012) Ch 26.

<sup>28</sup> *Gouriet v Union of Post Office Workers* [1978] AC 435, cited and distinguished in *Truth About Motorways Pty Ltd v Macquarie Infrastructure Investment Management Ltd* (2000) 200 CLR 591 at [37]-[40] (Gaudron J). Note, this is a common law position only and, at least in Australia, “there is no reason why the rule cannot be modified and adapted by the evolutionary processes of the common law”: *Truth About Motorways Pty Ltd v Macquarie Infrastructure Investment Management Ltd* (2000) 200 CLR 591 at [41] (Gaudron J).

<sup>29</sup> *British Columbia v Canadian Forest Products Ltd* [2004] 2 SCR 74 at 77 (McLachlin CJ and Iacobucci, Major, Binnie, Arbour and Deschamps JJ): “While it is open to the Crown in a proper case to take action as *parens patriae*, for compensation and injunctive relief on account of public nuisance, or negligence causing environmental damage to public lands, such litigation would raise important and novel policy issues.”

<sup>30</sup> *Truth About Motorways Pty Ltd v Macquarie Infrastructure Investment Management Ltd* (2000) 200 CLR 591 at [40] (Gaudron J).

<sup>31</sup> For example, see the *Mining Act 1992* (NSW), s 22; *Petroleum and Gas (Production and Safety) Act 2004* (Qld), s 41; *Water Act 1989* (Vic), s 33AC.

<sup>32</sup> It should also be noted that certain decisions of a Minister or government agency could initially be challenged under an administrative review law, eg the *Administrative Decisions (Judicial Review) Act 1977* (Cth) or the *Administrative Appeals Tribunal Act 1975* (Cth).

<sup>33</sup> See eg the principles enumerated in the *Petroleum and Gas (Production and Safety) Act 2004* (Qld), s 3(1). However, where the legal proceeding is commenced against a private individual, a court may be more willing to defer to the interests of the environment: see *Booth v Bosworth* (2001) 114 FCR 39; [2001] FCA 1453 at [115] (Branson J).

<sup>34</sup> See eg certain laws requiring the reporting of “notifiable conditions”: *Public Health Act 1997* (ACT), Pt 6; or allowing the non-consensual disclosure of sensitive information to “genetic relatives”: *Privacy Act 1988* (Cth), s 99AA; or the taking of blood from a hospitalised patient involved in a car crash: *Road Transport (Safety and Traffic Management) Act 1999* (NSW), s 20.

<sup>35</sup> National Health and Medical Research Council, Australian Research Council and Australian Vice-Chancellors’ Committee. *National Statement on Ethical Conduct in Human Research* (Commonwealth, Canberra, 2007).

<sup>36</sup> Such changes in attitude may not be immediate or easy: Stone CD, *Should Trees Have Standing? Toward Legal Rights for Natural Objects* (W Kaufmann, Los Altos, 1974) p 8.

If governments are not likely to intervene, then perhaps one answer lies in the “citizen-suit”, whereby a statute broadens the range of possible parties to include an “aggrieved” or “interested” person, or a person whose “interests are affected”.<sup>37</sup> Some laws may even allow “any person” to commence a civil action against a polluter, motivated only by the goal of protecting the environment or to enforce a “statutory norm of conduct”.<sup>38</sup> In some States the criminal law can be invoked against fraud by a citizen in a private prosecution (a *qui tam* action) with the assistance of “non-win no-fee” lawyers working in tandem with government prosecutors and legislation that accords the informants and their legal representatives (or “relator”) a percentage of the damages that arise from a successful prosecution.<sup>39</sup>

However, there are significant problems with entrusting the protection of a natural object, such as the Whanganui River, to well-meaning, legally appointed guardians. First, as discussed, those individuals may – in the absence of a statutory right – lack standing to bring the claim.<sup>40</sup> Secondly, however altruistic, an organisation may “sell out” the natural object in favour of an earlier settlement, perhaps driven by a lack of resources to fund a lengthy case, or may divert part of a payout to its own purposes or may simply not initiate an action.<sup>41</sup>

Thirdly, the members of an organisation – especially an incorporated body – may owe a fiduciary duty to shareholders (*Corporations Act 2001* (Cth), ss 180, 181), or at least a moral duty to members to not “waste” funds on actions that do not benefit the organisation. This may set up a conflict with the interests of the natural object. Fourthly, the relief that may be available to an individual or organisation seeking to protect a natural object (eg a river) may be limited. While a court might be willing to grant a prohibitory injunction,<sup>42</sup> or to award damages to the state,<sup>43</sup> it may be reluctant (or unable) to award those damages to the natural object itself. Legal personality could allow for a court to award damages to a trust established on behalf of the river, or to grant a mandatory injunction ordering a polluter to

<sup>37</sup> For example, the *Administrative Decisions (Judicial Review) Act 1977* (Cth), s 5; the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 475; the *Administrative Appeals Tribunal Act 1975* (Cth), s 25.

<sup>38</sup> The *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 475, allows an “interested person” to seek an injunction to prevent an action that would constitute a breach of the *Environment Protection and Biodiversity Conservation Act 1999*. Even broader standing is conferred on “any other person” to seek an injunction for misleading or deceptive conduct under s 80 of the *Competition and Consumer Act 2010* (Cth). See *Truth About Motorways Pty Ltd v Macquarie Infrastructure Investment Management Ltd* (2000) 200 CLR 591 at [17] (Gleeson CJ, McHugh J).

<sup>39</sup> Section 13 of the *Crimes Act 1914* (Cth) provides that “Unless the contrary intention appears in the Act or regulation ... any person” may institute proceedings for the commitment for trial of any person”; see generally Faunce TA, Urbas G and Skillen L, “Implementing US-Style Anti-Fraud Laws in the Australian Pharmaceutical and Health Care Industries” (2011) 194(9) MJA 474.

<sup>40</sup> Even if a law purports to confer standing for “citizen-suits”, these may not withstand constitutional challenge. For example, Art III of the United States *Constitution*, which makes federal judicial jurisdiction conditional on the existence of “cases” or “controversies”, has been construed narrowly by the Supreme Court to effectively eviscerate environmental legislation which purportedly conferred standing on interested (but not “injured”) citizens: *Steel Co v Citizens for Better Environment* 523 US 83 at 102 (1998) (Scalia J); United States, *Constitution*, Art III, § 2. By contrast, ss 75 and 76 of the Australian *Constitution* provide that the High Court (and other federal courts created by Parliament) shall have jurisdiction over certain “matters”, importantly over “any matter” “arising under any laws made by the Parliament”. Australia’s High Court has held there is no reason to construe this narrowly, with Parliament able to create new statutory norms of conduct and confer standing on “any person” provided there is an exercise of the federal judicial power: *Truth About Motorways Pty Ltd v Macquarie Infrastructure Investment Management Ltd* (2000) 200 CLR 591; and *Croome v Tasmania* (1997) 191 CLR 119 at 132-133 (Gaudron, McHugh and Gummow JJ).

<sup>41</sup> This point is raised in Stone, n 36, p 8.

<sup>42</sup> *Booth v Bosworth* (2001) 114 FCR 39; [2001] FCA 1453.

<sup>43</sup> *British Columbia v Canadian Forest Products Ltd* [2004] 2 SCR 74 at 79 (McLachlin CJ, Iacobucci, Major, Binnie, Arbour and Deschamps JJ): “There is nothing so peculiar about environmental damages as to cause the courts to neglect the potential of the common law which, if developed in a principled and incremental fashion, can assist in achieving the fundamental value of environmental protection.”

remediate a site. Remediation of a polluted river may have no social or economic benefit to humans but would acknowledge that the river system has independent “needs” and intrinsic value.<sup>44</sup>

In his famous work, *Should Trees Have Standing?* Stone presented the case for conferring legal personality and rights on the environment.<sup>45</sup> As Stone explained, as a rights-holder the natural object would “have a legally recognised worth and dignity in its own right, and not merely to serve as a means to benefit ‘us’....”<sup>46</sup> To achieve rights-holder status, the natural object must satisfy three criteria:

[First], that the thing can institute legal actions *at its behest*; second, that in determining the granting of legal relief, the court must take *injury to it* into account; and third, that relief must run to the *benefit of it*.<sup>47</sup>

*Tutohu Whakatupua* grants a status to Te Awa Tupua that appears to meet to Stone’s definition, in that it confers legal personality and standing on the river and that a mechanism is established for property to be bestowed on the river itself. It is conceivable that, in its own name and via its guardians, Te Awa Tupua could lodge an objection to a resource consent proposal under the *Resource Management Act 1991* (NZ) and be “a party” to any appeal;<sup>48</sup> could initiate proceedings in the Land and Environment Court seeking a declaration of “the existence or extent of any function, power, right, or duty under [the Act]” or a declaration that “a provision or proposed provision of a regional policy statement ... does not, or is not likely to, give effect to a provision or proposed provision of a national policy statement”.<sup>49</sup> Te Awa Tupua could apply for injunctive relief or compensation for negligent acts, just as companies, trusts, universities, ships and other “inanimate right-holders” exercise their “independent jural life”.<sup>50</sup>

Providing the environment, or a specific ecosystem, with an independent legal voice through such legal mechanisms is only a preliminary step in promoting greater recognition of the intrinsic normative value of natural objects. The thesis developed here is that revolutions in technology may drive both social attitudes and laws towards such an expansion of sympathy. In this context, competition and consumer law may facilitate rapid deployment of such products by giving environmental ethics purchasing power, while also diminishing the capacity of multinational corporate entities to disrupt such markets.

## COMPETITION AND CONSUMER POLICY FACILITATING ENFORCEABLE RIGHTS FOR ECOSYSTEMS?

At first glance, there seems little role for competition and consumer policy to facilitate the granting of legal personality to animals or ecosystems. Indeed, when the environment and non-human sentient beings are characterised by powerful artificial corporate “people” as goods to be “efficiently marketed”, their interests and welfare end up being legally subordinated to the pressures of a putatively “free market” mostly blind to non-economic concerns.<sup>51</sup>

It is possible, however, that the pro-democratic forces of consumer demand protected by competition and consumer policy might be enlisted in favour of the environment and its inhabitants.

Indeed, market forces and the industries that respond to them are profoundly influenced by consumer demand, taking the form of spending patterns. It is for this reason that multinational

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<sup>44</sup> The *Resource Management Act 1991* (NZ), s 7(1)(d), states that the “intrinsic values of ecosystems” are one factor to be considered by all persons exercising power under the Act; Stone, n 36, p 24.

<sup>45</sup> Stone, n 36.

<sup>46</sup> Stone, n 36, p 11.

<sup>47</sup> Stone, n 36, p 11.

<sup>48</sup> *Resource Management Act 1991* (NZ), ss 92(2), 299(1).

<sup>49</sup> *Resource Management Act 1991* (NZ), ss 311(1), 310(1)(a), (b).

<sup>50</sup> Stone, n 36, p 5.

<sup>51</sup> Bruce A, “Descartes’ Ghost and the Trade Practices Act” (2009) 2 *Australian Animal Protection Law Journal* 49.

corporate agribusiness producers have responded to consumer demand for “fair trade” or “organic” or “free range” or “hormone-free” or “GMO-free” produce. Indeed, consumer concerns for animal welfare in the production of eggs and meat have been particularly important in this context. In fact,

Consumers are not only becoming more concerned about the safety of products for humans, animals and the environment, but also attach moral significance to the way each product is being produced and the norms and values involved. And what is even more striking, they also think it important to express these “ethical” and political preferences in the market itself and not solely in the political forum.<sup>52</sup>

There is ample evidence from the European Union that competition and consumer policy can facilitate industry responsiveness to the preference of consumers for environmentally and animal welfare friendly products.<sup>53</sup> Such a mechanism for expressing ethical preferences could help establish the preconditions for recognising natural rights, and securing enhanced legal protection for both the environment and non-human sentient beings.

The Australian Competition and Consumer Commission (ACCC), eg, tasked with regulatory oversight of competition and consumer policy, has strategically used litigation under the *Competition and Consumer Act 2010* (Cth) to influence industry animal welfare practices. Recent decisions of the Federal Court of Australia in *Australian Competition and Consumer Commission v CI & Co Pty Ltd* [2010] FCA 1511 and *Australian Competition and Consumer Commission v Turi Foods Pty Ltd (No 2)* [2012] FCA 19 also demonstrate how the new *Australian Consumer Law* can be enforced to prevent misleading or deceptive welfare claims associated with food animal products, thereby generating industry change for the benefit of both the environment and animals. Likewise, the ACCC is deploying the *Competition and Consumer Act 2010* (Cth) to address industry environmental claims associated with “green washing”.<sup>54</sup>

These strategic regulatory and litigation initiatives by the ACCC illustrate that the creative use of competition and consumer policy can be deployed to protect the environment, discrete eco-systems and non-human sentient beings. Because competition and consumer policy is dedicated to satisfying consumer demand, it does not consider motives, intentions or even laudable goals. However, when consumers demonstrate demand for environment and animal friendly products, a strategically enforced competition and consumer policy can generate industry change that benefits the environment and its inhabitants. This law could have significant potential to facilitate rapid deployment of environmentally friendly technologies, such as artificial photosynthesis (as is explored in the next section).

It is ironic that at the same time as steps are being taken to expand legal personhood to include ecosystems, measures are also being introduced to strip that status from those artificial persons (particularly multinational corporations) bearing much responsibility for practices harming the

<sup>52</sup> Korthals M, “Taking Consumers Seriously: Two Concepts of Consumer Sovereignty” (2001) 14 *Journal of Agricultural and Environmental Ethics* 201 at 203.

<sup>53</sup> Harper G and Henson S, *Consumer Concerns About Animal Welfare and the Impact on Food Choice: Final Report* (United Kingdom Department of Agriculture and Food Economics, 2001); Schroder M and McEarchen M, “Consumer Value Conflicts Surrounding Ethical Food Purchase Decision: A Focus on Animal Welfare” (2004) 28 *International Journal of Consumer Studies* 168; Chilton SM, Burgess D and Hutchinson WG, “The Relative Value of Farm Animal Welfare” (2006) 59 *Ecological Economics* 353; Carlsson F and Frykblom P, “Consumer Willingness to Pay for Farm Animal Welfare” (2007) 34(3) *European Review of Agricultural Economics* 321; Mayfield LE, Bennett RM, Tranter RB and Woolbridge MJ, “Consumption of Welfare-friendly Food Products in Great Britain, Italy and Sweden and How It May be Influenced by Consumer Attitudes to and Behaviour Towards Animal Welfare Attributes” (2007) 15(3) *International Journal of Sociology of Food and Agriculture* 59; Morgan D and McVittie A, “Estimation of the Value the Public Places on Regulations to Improve Broiler Welfare” (2008) 17 *Animal Welfare* 43; Nocella G, Hubbard L and Scarpa R, “Farm Animal Welfare, Consumer Willingness to Pay and Trust – Results of a Cross-National Survey” (2010) 32(2) *Applied Economic Perspectives and Policy* 275; Napolitano F, Girolami A and Braghieri A, “Consumer Liking and Willingness to Pay for High Welfare Animal-based Products” (2010) 21 *Trends in Food Science & Technology* 537; Lagervist CJ and Hess S, “A Meta-Analysis of Consumer Willingness to Pay for Farm Animal Welfare” (2011) 38(1) *European Review of Agricultural Economics* 55; Toma L, Scott AW, Revoredo-Giha C and Kupiec-Teahan B, “Consumers and Animal Welfare. A Comparison Between European Countries” (2012) 58 *Appetite* 597.

<sup>54</sup> Australian Competition and Consumer Commission, *Green Marketing and the Australian Consumer Law* (Commonwealth, Canberra, 2011); <http://www.accc.gov.au/content/item.php?itemId=815763&nodeId=90c89998139b822f949e69e227917455&fn=Green%20marketing%20and%20the%20ACL.pdf> viewed 1 February 2013.

environment. In this context, one of the main issues for the next generation of global health law will be whether or to what extent corporations should maintain their status as legal persons.

The rise and democratic fall from grace of corporate legal personhood in the United States provides an interesting point of comparison with the emergence of ecosystem rights. In *Trustees of Dartmouth College v Woodward* 17 US 518 (1819), the United States Supreme Court recognised corporations as having the same rights as natural persons to contract and to enforce contracts. In *Santa Clara County v Southern Pacific Railroad* 118 US 394 (1886), the case note reported the then Chief Justice as stating that the Fourteenth Amendment to the United States *Constitution*, which forbids a State to deny to any person within its jurisdiction the equal protection of the laws, applies to these corporations. This was affirmed in *Pembina Consolidated Silver Mining Co v Pennsylvania* 125 US 181 (1888). Thus, corporations in the United States acquired legal personhood at a time when women, Native Americans and most African American men were denied the right to vote. More corporate rights followed. In 1893 corporations were assured Fifth Amendment protection of due process; in 1906 they won Fourth Amendment search and seizure protection (*Hale v Henkel* 201 US 43 (1906)). In 1922 they won the protection of the “takings” clause of the Fifth Amendment (*Pennsylvania Coal Co v Mahon* 260 US 393 (1922)); in 1936 (*Grosjean v American Press Co* 297 US 233 (1936) and with the 1947 *Taft-Hartley Act* Pub L 80-101, 61 Stat 136, enacted 23 June 1947) they started enjoying First Amendment protections. In 1976 the Supreme Court determined in *Buckley v Valeo* 424 US 1 (1976) that money spent for political purposes is equal to exercising free speech. A rule of construction specified in 1 USC §1 (*United States Code*) states:

In determining the meaning of any Act of Congress, unless the context indicates otherwise – the words “person” and “whoever” include corporations, companies, associations, firms, partnerships, societies, and joint stock companies, as well as individuals.

Many in that nation are now realising that the move towards ever greater rights for corporations has come at an unacceptable cost to “natural” persons, more commonly known as “real or living people” as well as the environment. In *Citizens United v Federal Election Commission* 558 US 310 (2010), the Supreme Court held that the First Amendment of the United States *Constitution* prohibited the government from restricting independent political expenditures by corporations and unions, thus undermining the final democratic equaliser between natural persons (ie voters) and corporations. Reflecting on what may be characterised as the zenith of corporate personhood, Edwards and Morgan comment:

As different groups of people struggled to become persons under the law, the corporation acquired rights belonging to We the People and ultimately became superhuman, still maintaining an artificially elevated status for a small number of people.<sup>55</sup>

A considerable number of ordinances and resolutions have now been passed against corporate personhood by legislative bodies in the United States.<sup>56</sup> It has even been argued that in a new global social contract multinational corporations could truly embrace the virtue-seeking aspects of personhood by a legal obligation to become “married” in to a public good as a requirement of yearly registration.<sup>57</sup> “The corporate registration process would involve a contract as to what were the appropriate terms, monitoring and outcomes measures of such a marriage. The capacity for ‘divorce’ and ‘remarriage’ of artificial corporate persons could, of course, also be specified.”<sup>58</sup>

In contrast to the ceaseless march of corporate rights, recent proposals to confer legal standing on natural objects seem mild. But if the environment was given legal personality, and recognised as a living being or even a patient, what, if any, implications would that have for our future relationship with the environment and could it bring with it not only an ethical but a legal duty to treat, to heal?

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<sup>55</sup> Edwards J and Morgan M, *Abolish Corporate Personhood* (20 May 2004), <http://reclaimdemocracy.org/abolish-corporate-personhood> viewed 1 February 2013.

<sup>56</sup> Organisation “Move to Amend” catalogues the number of ordinances and resolutions passed in the United States against corporate personhood: *Move to Amend*, <https://movetoamend.org/resolutions-map> viewed 1 February 2013.

<sup>57</sup> Faunce TA, *Nanotechnology for a Sustainable World: Global Artificial Photosynthesis as the Moral Culmination of Nanotechnology* (Edward Elgar, Cheltenham, 2012) p 141.

<sup>58</sup> Faunce, n 57, p 141.

## NEW TECHNOLOGIES FACILITATING RIGHTS FOR ECOSYSTEMS: PLANETARY THERAPEUTICS – A NEW FOCUS FOR GLOBAL HEALTH LAW

One of the consequences of granting legal personhood to ecosystems is that this will increase an understanding that they should be considered ethically as “sick” persons, “patients” in need of medical assistance. Through industry, land clearing and the burning of fossil fuel, humans have effected great and deleterious change to our natural environment. Warming of the global environment with its precipitation of frequent, extreme weather events, is “unequivocal”, with 11 of the years between 1995-2006 ranking among the 12 warmest years in the instrumental record of global surface temperature.<sup>59</sup> Australia’s average temperature is projected to rise 0.6 to 1.5°C by 2030 when “compared with the climate of 1980 to 1999”, with a possible rise of 1.0 to 5.0°C by 2070.<sup>60</sup> Predicted impacts of climate change on human health include increased occurrence of tropical diseases at lower latitudes, increased mortality from more frequent heatwaves and nutritional challenges brought about by the loss of traditionally arable land.<sup>61</sup> Climate change is only one of several “planetary boundaries” which, if transgressed, threaten to disrupt the environmental systems that have supported human development.<sup>62</sup> Other systems identified as critical to global, that is to say planetary, health include biodiversity loss, excess nitrogen and phosphorus production, stratospheric ozone depletion, ocean acidification, global consumption of fresh water, change in land use for agriculture, air pollution and chemical pollution.<sup>63</sup>

While transgression of these boundaries will impact upon *human* health, eg by higher rates of skin cancer, respiratory illness and cardiovascular disease, these changes also affect the health of the environment itself. Pollution or diversion of fresh water by farming can degrade downstream riparian zones, corals and crustaceans and molluscs are at risk from climate change-related acidification of the oceans, and mining and farming activities pose threats to biodiversity and the health of various ecosystems. These “planetary boundaries” can be considered analogous to human physiological parameters as obtained on standard full blood count, electrolyte, liver, endocrine, respiratory, cardiovascular and neurological functions tests.<sup>64</sup> The next generation of global health law could see them incorporated in Conventions as obligations under international law.

Corporate exploitation of the environment pushing such safe boundaries of planetary physiology is (such companies often claim) largely motivated by consumer demand for natural resources, for energy produced from fossil fuels and for food and water. The nexus between the systematic exploitation of the environment and competition and consumer policy is established through contemporary market dynamics which are often skewed towards the interests of multinational corporations and against rapid uptake of renewable energy technologies that may remedy the situation. Dominated by neo-classical economic theory, efficiency is the hermeneutical lens through which contemporary markets and the legal regulation of those markets are generally understood by

<sup>59</sup> Pachauri RK and Reisinger A (eds), Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Synthesis Report* (IPCC, Geneva, 2007) p 30. The fifth IPCC Report is currently in preparation and due for release in 2013. It is expected to show a continuation of the warming trend identified in the third and fourth IPCC reports released in 2001 and 2007 respectively.

<sup>60</sup> Bureau of Meteorology, CSIRO, *State of the Climate 2012* (2012), <http://www.csiro.au/Outcomes/Climate/Understanding/State-of-the-Climite-2012.aspx> viewed 7 January 2013.

<sup>61</sup> Lockwood AH, Welker-Hood K, Rauch M et al (eds), *Coal’s Assault on Human Health* (Physicians for Social Responsibility, 2009), Table ES.2 (p xiii), <http://www.psr.org/assets/pdfs/psr-coal-fullreport.pdf> viewed 7 January 2013.

<sup>62</sup> For an introduction to the concept of planetary boundaries see Steffen W, Rockström J and Costanza R, “How Defining Planetary Boundaries Can Transform Our Approach to Growth” (2011) 2(3) *Solutions*, <http://www.thesolutionsjournal.com/node/935> viewed 7 January 2013.

<sup>63</sup> Steffen, Rockström and Costanza, n 62.

<sup>64</sup> Faunce TA, “Governing Planetary Nanomedicine: Environmental Sustainability and a UNESCO Universal Declaration on the Bioethics and Human Rights of Natural and Artificial Photosynthesis (Global Solar Fuels and Foods)” (2012) 6(1) *Nanoethics* 15.

policy-makers.<sup>65</sup> Under the prevailing model of corporate globalisation, corporate success, particularly in the environmentally damaging “archived photosynthesis” (oil, coal and natural gas) industries, is defined in terms of profit and return on investments, where wealth is maximised through productive and technical efficiencies accomplished through techniques of efficient exploitation and mass production of goods and services.<sup>66</sup>

Purchasing demand by citizens for environmentally ethical products in most Western countries could be supported by competition and consumer policy. In both Australia and New Zealand, competition and consumer policy is supported by a statutory regime intended to benefit consumers and their broad interests.<sup>67</sup> These legislative regimes are intended to facilitate fair, competitive and informed markets for the benefit of consumers and the forces of consumption that drive markets. Yet nowhere in the Australian or New Zealand competition statutes are the environment, ecosystems or other sentient beings explicitly protected. In fact, rivers, trees, animals and other natural resources are defined as “goods” that may be efficiently exploited to satisfy consumer demand.<sup>68</sup>

Accordingly, as a “rightless” object, the environment has few remedies to protect its interests – whether or not those interests are concomitant with human interests.<sup>69</sup> The New Zealand Government’s announcement in August 2012, however, that, as part of a settlement with certain Maori tribes, it would grant legal standing and personality to the Wanganui River, and appoint guardians to act in its interests,<sup>70</sup> demonstrates a mechanism for protecting, if not a whole ecosystem, at least critical elements within that system.

Doctors and other members of the medical fraternity are well positioned to assist this process of normative transition. Such professionals have long advocated that the governance of their profession and its interests in promoting health should encompass causes larger than the patient in their clinic. Examples include the Medical Association for Prevention of War,<sup>71</sup> the International Physicians for the Prevention of Nuclear War (IPPNW),<sup>72</sup> and Physicians for Social Responsibility.<sup>73</sup> The contribution of doctors to these social causes, including both human and environmental aspects, has been repeatedly recognised with the IPPNW awarded the 1985 Nobel Peace Prize.<sup>74</sup> With climate change likely to present a similar threat to human health and the environment, it is appropriate for health practitioners to take an active role in environmental advocacy. Medical practitioners, familiar with concepts such as the flow-on effects of a high sodium diet on multiple systems, or the way in which the body maintains acid-base homeostasis, may find their understanding of human physiology and risk analogous to the concept of “planetary boundaries” and assist in the development and clarification of this relatively young discipline.<sup>75</sup>

While planetary medicine has been largely a discipline of diagnostics (much as was clinical medicine in the 19th century), nanotechnology as applied in areas such as artificial photosynthesis offers it a form of “planetary therapeutics”. For example, researchers now are actively redesigning

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<sup>65</sup> Spigelman J, “Economic Rationalism and the Law” (2001) 24(1) UNSWLJ 200.

<sup>66</sup> Ibrahim D, “A Return to Descartes: Property, Profit and the Corporate Ownership of Animals” (2007) 70 *Law and Contemporary Problems* 86.

<sup>67</sup> *Competition and Consumer Act 2010* (Cth), s 2; *Commerce Act 1986* (NZ), s 1A.

<sup>68</sup> In fact, both Acts define natural resources and non-human sentient beings as “goods”: *Competition and Consumer Act 2010* (Cth), s 4; *Commerce Act 1986* (NZ), s 2.

<sup>69</sup> Stone, n 36.

<sup>70</sup> Finlayson, n 14.

<sup>71</sup> *Medical Association for Prevention of War*, <http://www.mapw.org.au> viewed 10 January 2013.

<sup>72</sup> *International Physicians for the Prevention of Nuclear War*, <http://www.ippnw.org/index.html> viewed 10 January 2013.

<sup>73</sup> *Physicians for Social Responsibility*, <http://www.psr.org> viewed 10 January 2013.

<sup>74</sup> Nobelprize.org, *The Nobel Peace Prize 1985*, [http://www.nobelprize.org/nobel\\_prizes/peace/laureates/1985](http://www.nobelprize.org/nobel_prizes/peace/laureates/1985) viewed 10 January 2013.

<sup>75</sup> Steffen et al acknowledged that the setting of planetary boundaries is a “normative judgment, informed by science but largely based on human perceptions of risk.” Steffen, Rockström and Costanza, n 62.

photosynthesis to achieve low-cost, local-domestic conversion of sunlight, water and carbon dioxide into fuel for heating and cooking.<sup>76</sup> Numerous competitively funded research teams have dedicated artificial photosynthesis-related projects already underway in many developed nations.<sup>77</sup> An international conference coordinated by the third author of this column in August 2011 brought together senior artificial photosynthesis and global governance experts purportedly as a precursor to a macrosience Global Artificial Photosynthesis (GAP) Project.<sup>78</sup> Enhanced artificial photosynthesis, if applied equitably, could assist crop production on marginal lands, reduce atmospheric CO<sub>2</sub> levels, lower geopolitical and military tensions over fossil fuel, food and water scarcity and create carbon-neutral hydrogen fuel for domestic, community and industrial storage. A world where every road, vehicle and building was doing photosynthesis more efficiently than plants is a world where human technology is allowing our species to “pay its own way” and to survive without exploitation of nature. Yet this is a technology whose rapid development and deployment is likely to be inhibited by artificial corporate persons in the economically and normatively powerful “archived photosynthesis” (oil, coal and natural gas industries) previously mentioned.<sup>79</sup>

Increasing numbers of doctors are likely to realise that their ethical and legal responsibilities require them to protect human health proactively from the impacts of biodiversity loss, climate change, land use or pollution, for instance by promoting such technology. Such activism may include supporting a legal suit (ie, by providing expert evidence) in the name of a *presently* “suffering” patient (such as a river or other ecosystem). Rather than NGOs expending legal resources convincing a judge that their group deserves standing to protect the *future* health of possible *future* generations, it would be easier for such professionals to represent an existing legal entity suffering an identifiable harm with a clear chain of causation, and whose degradation mirrors an expected decline in human health. Such a position was advanced by Stone who suggested the way to promote rights for natural objects was to argue “the homocentric” position, namely:

[T]o view what I am proposing so far, is to view the guardian of the natural object as the guardian of unborn generations, as well as of the otherwise un-represented, but distantly injured, contemporary humans.<sup>80</sup>

The current authors’ thesis is that the case of the Whanganui River reflects a worldview that will increasingly become a major part of global health law – that law must devise forms of action and processes to recognise that peoples, not just Maori and individual Iwi, are physically and spiritually linked with the environment: “*Ko au te Awa, ko te Awa ko au* / I am the river, and the river is me”. For health lawyers the river can be considered as much of a patient as an individual member of the Iwi – with the health of both inextricably linked. Even in Western cultures, separated as they are from the ebb and flow of the natural environment, there is an acknowledgment of the psychological amenity and economic value provided by “knowing that the resource is protected”.<sup>81</sup> These are familiar concepts for the expert psychologist or psychiatrist to give opinion evidence on in court proceedings, whether to establish damage or costs.

Environmental sustainability appears here as a primary social virtue alongside the more human-centred justice, and equity, being linked with so-called “ecocentric” or “biocentric” ethics. Such virtue is maintained by consistent application of universally applicable principles in the face of

<sup>76</sup> Hurst JK, “In Pursuit of Water Oxidation Catalysts for Solar Fuel Oxidation” (2010) 328 *Science* 315; Pace R, “An Integrated Artificial Photosynthesis Model” in Collings A and Critchley C (eds), *Artificial Photosynthesis: From Basic Biology to Industrial Application* (Wiley-VCH Verlag, Weinheim, 2005) p 13.

<sup>77</sup> Sanderson K, “The Photon Trap” (2008) 452 *Nature* 400.

<sup>78</sup> *Towards Global Artificial Photosynthesis: Energy, Nanochemistry and Governance, Conference Proceedings*, <http://law.anu.edu.au/coast/tgap/conf.htm> viewed 27 September 2011.

<sup>79</sup> Faunce TA, Lubitz W, Rutherford AW, MacFarlane D, Moore GF, Yang P, Nocera DG, Moore TA, Gregory DH, Fukuzumi S, Yoon KB, Armstrong FA, Wasielewski MR and Styring S, “Energy and Environment Case for a Global Project on Artificial Photosynthesis” (2013) 6(3) *Energy Environ Sci* 695.

<sup>80</sup> Stone, n 36, p 28.

<sup>81</sup> *British Columbia v Canadian Forest Products Ltd* [2004] 2 SCR 74 at 135 (Hall JA).

obstacles. This normative sub-branch is also known by terms such as Gaia Theory, or Deep Ecology and finds semi-formal expression in documents like the *Earth Charter* or *Earth Manifesto*. It involves two key moral or ethical principles:

- The first is that the flourishing and diversity of non-human life-forms has intrinsic value requiring protection by policies and technologies that reduce the number of humans along with their demands on those other species.
- The second holds that human flourishing itself requires a deepening respect for right relations with ecosystems which should be reflected in the choices our species make about the use of new technologies such as nanotechnology.

The virtues of ecological sustainability were influentially propounded by eco-economists such as EF Schumacher (with his concept of “small (and local) is beautiful”) and Kenneth Boulding (with his idea of “Spaceship Earth” as a closed economy requiring recycling of resources). In doing this, the former drew upon Buddhist ethical principles and virtues, while the latter relied upon those resonating with the Quaker tradition. The economist Herman Daly similarly drew on the laws of thermodynamics and the tendency of the universe to greater entropy (dispersal of energy) to champion the idea of “steady-state” economics that financially values maintenance of ecosystems equally with production and profits. Such an approach could be extended to suggest that patterns of governance such as global health law be coherent not just with thermodynamics, but with physical laws and patterns of symmetry such as those underpinning electromagnetism, gravity, general relativity and quantum physics, as well as other principles that are non-falsifiable, without necessarily correlating with our sensory-oriented experience of the world.

The ethics of planetary medicine may also link with environmental sustainability by extension from moral concerns in related areas such as protection of animals. Foundational ethical ideas here are the common capacity to suffer, the primacy of norms preventing suffering as far as practicable for the majority of our interactions and the need for environmental sustainability to be a billion-year policy agenda if our species is to be regarded as ethical. The focus on the normative primacy of “suffering” in planetary medicine may create conceptual difficulties, however, for those who rely upon it to argue that ecosystems (such as wild rivers or rainforests) deserve ethical protection. Why should expanding the circle of empathy require proof that an entity or biosystem can suffer because it possesses a nervous system that we can readily discern as comparable to our own?<sup>82</sup>

It is an ethical act of importance to global health law to imagine how the rights of nature are likely to proliferate in a world where each household can generate its own basic carbohydrate food and hydrogen fuel (perhaps stored in complexes with building materials) for cooking, heat and light simply and cheaply from a roof unit that required as inputs only photons, water and carbon dioxide. Such rights of nature would become more attractive to the consumer or citizen public as the pressure thereby was taken off the natural environment to provide land for crops or sources of fuel. Thinking in this way complements the emerging discipline of planetary medicine by creating the preconditions where there will no longer be a prohibitive economic or social cost in giving rights to ecosystems.

In summary, decisions such as that to accord legal personhood to the Whanganui River will undoubtedly promote discussion as to whether global health law and ethics can facilitate such ecosystem rights by facilitating use of renewable energy technologies as forms of planetary therapeutics. One such approach is to use nanotechnology as a mechanism for improving photosynthesis and engineering it into all human structures (ie, roads, buildings and vehicles) for localised production of carbon-neutral hydrogen-based fuel and carbohydrate-based food and fertiliser.<sup>83</sup>

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<sup>82</sup> Furnass B, “From Anthropocene to Sustainocene. Challenges and Opportunities”, Public Lecture, The Australian National University, 21 March 2012. Of course, natural objects do reveal their distress. A plant will show signs of stress or injury as a result of poor soil quality, nutrition, or lack of water; fish will die in polluted or oxygen-starved rivers; and alpine ecosystems will diminish as a consequence of rising temperatures.

<sup>83</sup> Faunce TA, “Towards Global Artificial Photosynthesis (Global Solar Fuels): Energy, Nanochemistry and Governance” (2012) 65 *Australian Journal of Chemistry* 557, <http://dx.doi.org/10.1071/CH12193> viewed 1 February 2013.

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**CONCLUSION**

The extent to which the implementing legislation gives effect to the in-principle agreement reached in 2012 between the New Zealand Government and the Whanganui Iwi remains to be seen. Likewise, it may be some time before evidence emerges of how (and how well) the Te Pou Tupua act in the interests of the Te Awa Tupua. Nonetheless, the case of the Whanganui sets an important precedent for how indigenous people and environmental activists can reclaim or protect important ecosystems or natural objects. The Whanganui determination on the legal status of this river provides important lessons and exciting ideas to lawyers and doctors seeking effective ways to protect human health, while at the same time affording proper recognition to the life-sustaining systems which make up our environment. In addition, when consumer demand for this recognition is translated into purchasing behaviour, even the very markets that exploit the environment can function as agents of preservation. The strategic use of competition and consumer policy (driven by the ethical choices of individual citizens), potentially supporting consumer demand for environmentally friendly goods and services, may become an alternative to increasingly corporate-dominated, state command-control governance mechanisms in the larger cause of protecting those life-sustaining systems that support us all.

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